

50. (New) The process of Claim 49 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

51. (New) The process of Claim 35 wherein the polyurethane of the hot melt adhesive is an ionic polyurethane.--

REMARKS

In response to the Office Action of November 4, 2002, Applicants have amended the claims, which when considered with the following remarks, is deemed to place the present application in condition for allowance. Favorable consideration of all pending claims is respectfully requested. Amendments and/or cancellation of claims have been made in the interest of expediting prosecution of this case. Applicants reserve the right to prosecute the same or similar subject matter in this or another application.

Claims 1, 13-15, 18, 26, 28-30 and 32-51 are pending. By this Amendment, Claims 1, 18, 26, 32, 35 and 36 have been amended, new Claims 37-51 have been added and Claims 16-17, 19, 21-25 and 31 have been canceled without prejudice. Applicants attach Appendix A hereto containing a marked up version of the revised paragraph of the specification. Applicants also attach as Appendix B a marked up version of original Claims 1, 18, 26, 32, 35 and 36. Applicants respectfully submit that no new matter has been added to the subject invention nor have any new issues been raised by this Amendment, e.g., Claim 35 has been amended in manner believed to overcome the rejection under the first paragraph of 35 U.S.C. §112 or at the

very least to place the amended claim in better condition for appeal if one becomes necessary. Thus, entry and consideration of the present Amendment is appropriate as it is believed that the application is in condition for allowance.

The specification has been amended in a manner believed to obviate the Examiner's objection to the disclosure. Accordingly, withdrawal of the objection is respectfully requested.

The Examiner has rejected Claims 32-36 under the first paragraph of 35 U.S.C. § 112 as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner is of the belief that "(a) the chain extender recited (viz. In claims 32 and 35-36) is (1) apparently nowhere stipulated as being or characterized as 'hydrophobic' and (2) disclosed as being 'short chain'; (b) the term '6 to 36 carbon atoms' is inconsistent with the term '4 to 44 carbon atoms' recited in the specification; and (c) there is apparently no support at all in the specification (and none has been cited) for the limitations of claim 35 in its entirety ..."

The proper test for sufficiency of description in a patent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter. *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). Exactly how the specification allows one skilled in the art to recognize that an applicant had possession of the claimed invention is not material. *In re Smith*, 481 F.2d 910, 178 USPQ 279 (CCPA 1973). Typically, an applicant conveys that he or she is in possession of the invention by use of descriptive means such as "words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood v. American*

Airlines, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). To comply with the description requirement, it is not necessary that the application describe the invention *ipsis verbis*. *In re Lukach*, 442 F.2d 967, 169 USPQ 795 (CCPA 1971). What is required is that an ordinarily skilled artisan recognize from the disclosure that applicants invented the subject matter of the claims, including the limitations recited therein. *In re Smith*, 481 F.2d at 915, 178 USPQ at 284.

Applicants submit that the claimed hot melt adhesive of Claims 32-36 as presently amended are sufficiently supported by the written description provided in the specification since, based on the following remarks, one skilled in the art would reasonably believe that Applicants invented the subject matter recited therein. For example, the specification would allow one skilled in the art to understand that the claimed recitation "the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic diol having a hydrophobic moiety containing from 6 to 36 carbon atoms" as presently set forth in amended Claim 32 is fully supported on line 3 of page 11 through line 10 of page 12 of the specification where it is stated that the up to 10% of the polyol component of the nonionic polyurethane may be replaced by other diols which contain a hydrophobic moiety of 6 to 36 carbon atoms and then further lists preferred hydrophobic diols. The specification further provides working examples of how to make the claimed hotmelt adhesive.

In addition, the specification would also allow one skilled in the art to understand that the claimed recitation "the hydrophobic structural element obtained by reacting at least one NCO-terminated oligomer with a reactant selected from the group consisting of monoals and monofunctional amines" as presently set forth in amended Claim 35 is believed to be fully

supported on lines 12-24 of page 18 where it is stated that "[h]ydrophobic structural elements may also be obtained by reaction of NCO-terminated oligomers with monools or monofunctional amines." Thus, the claimed hotmelt adhesive can be found within the specification as filed to allow one skilled in the art to believe that applicants were in possession of the claimed subject matter as of the filing date. Such being the case, the claimed hotmelt adhesive as presently recited in amended Claims 32-36 is believed to be fully supported as to comply with the requirement for the first paragraph of 35 U.S.C. §112. Accordingly, withdrawal of the rejection of Claims 32-36 under the first paragraph of 35 U.S.C. §112 is respectfully requested.

The Examiner has rejected Claims 32-36 under the second paragraph of 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 32-36 have been amended in a manner believed to obviate the Examiner's rejection. Accordingly, withdrawal of the rejection under the second paragraph of 35 U.S.C. §112 is respectfully requested.

The Examiner has rejected Claims 1 and 13-15 and 31 under 35 U.S.C. §102(b) as being anticipated by Cooper et al. U.S. Patent No. 3,462,342 ("Cooper") or Miller et al. U.S. Patent No. 5,552,511 ("Miller").

Nowhere does Cooper disclose or suggest a process for the production of at least two-ply paper laminates comprising "applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C" as presently recited in amended Claim 1.

Rather, Cooper disclose hotmelt applicable thermoplastic adhesives which can become tacky upon moistening. The adhesives in Cooper are based on a copolymer of vinyl methyl ether, on a polymer or copolymer of an acrylic acid, on a modified cellulose material, or on vinyl pyrrolidone-vinyl acetate copolymers. At no point does Cooper disclose a hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight and comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C is desirable in the formation of a two-ply paper laminates. In lacking any disclosure or suggestion of employing the specifically recited hotmelt adhesive in the amended claimed process for the production of at least two-ply paper laminates, Cooper fails to anticipate or render obvious the subject matter of any of amended Claims 1 and 13-15.

Miller likewise nowhere discloses or suggests a process for the production of at least two-ply paper laminates comprising “applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C” as presently recited in amended Claim 1.

Rather, Miller discloses a process for forming laminates using water dispersible adhesives based on a branched polyester composition containing a sulfomonomer. As Miller also lacks any disclosure or suggestion of employing the specifically recited hotmelt adhesive in the amended claimed process for the production of at least two-ply paper laminates, Miller

likewise fails to anticipate or render obvious the subject matter of any of amended Claims 1 and 13-15.

For the forgoing reasons, Claims 1, 13-15 and 31 are believed to be patentable over Cooper and Miller. Accordingly, withdrawal of the rejection under 35 U.S.C. §102(b) is respectfully requested.

The Examiner has rejected original Claims 1, 13-16, 19, 21-26 and 28-30 under 35 U.S.C. §102(b) as anticipated by Sirota et al. U.S. Patent No. 3,753,944 ("Sirota"). Of these claims, Claims 1 and 26 have been amended and Claims 19 and 21-25 have been canceled without prejudice. The Examiner asserts that Sirota et al. disclose that a laminated hygienic paper product may be formed by utilizing a polyethylene oxide adhesive.

Nowhere does Sirota disclose or suggest a process for the production of at least two-ply paper laminates comprising "applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C" as presently recited in amended Claim 1. Nor, for that matter, does Sirota disclose or suggest a two-ply hygiene paper comprising a first layer of paper secured to a second layer of paper by "a hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight and comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000, wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C" as presently recited in amended Claim 26.

Rather, Sirota discloses water-soluble hotmelt adhesive compositions obtained from (a) polyethylene oxide having a molecular weight between 15,000 and 50,000 and (b) a water-soluble poly(alkylene oxide) having a molecular weight between 190 and 15,000 suitable for pick-up and tail tying of wound paper web products. At no point is there any disclosure or suggestion in Sirota of the specifically recited hotmelt adhesive as set forth in the presently amended claims. Accordingly, amended Claims 1, 13-16 and 21-26 and 28-30 are also believed to be patentable over Sirota.

The Examiner has rejected original Claims 1, 13-15, 17-23, 25 and 32-36 under 35 U.S.C. §102(b) as anticipated by Japanese CHEM KK reference J5 4001-347 ("Japanese CHEM KK"). Of these claims, Claims 1, 32, 35 and 36 have been amended and Claims 19-25 have been canceled without prejudice. According to the Examiner, the Japanese CHEM KK abstract discloses the use of a water-soluble polyurethane resin as a hotmelt adhesive.

Nowhere in Japanese CHEM KK is there any disclosure or suggestion of a process for the production of at least *two-ply paper laminates* comprising "applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C, and laminating at least a second layer of paper onto the adhesive side of the first layer" as presently recited in amended Claim 1.

Rather, Japanese CHEM KK discloses that a water soluble polyurethane resin can be used in thermally bonding a *hot-melt adhesive cloth to cloth* without hardening the texture of the sewn finished product. The final product is used as, for example, a collar or a cuff in a shirt.

Applicants instead form two-ply paper laminates in the recited process of the present invention, as set forth in amended Claim 1. In lacking any disclosure or suggestion in the Japanese CHEM KK reference of a process for the production of at least two-ply paper laminates comprising applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C, and laminating at least a second layer of paper onto the adhesive side of the first layer, amended Claims 1, 13-15 and 18 are believed to be patentable over Japanese CHEM KK.

With respect to amended Claims 32-34 and 36, nowhere does Japanese CHEM KK disclose or suggest a process comprising, *inter alia*, “applying a hotmelt adhesive to at least a portion of a first layer of paper, the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic diol having a hydrophobic moiety containing from 6 to 36 carbon atoms” as presently recited in amended Claim 32. Nor, for that matter, does Japanese CHEM KK disclose or suggest a process comprising, *inter alia*, “applying a hotmelt adhesive to at least a portion of a first layer of paper, the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic structural element obtained by reacting at least one NCO-terminated oligomer with a reactant selected from the group consisting of mono-ols and monofunctional amines” as presently recited in amended Claim 35.

Rather, and as discussed above, Japanese CHEM KK discloses that a water soluble polyurethane resin can be used in thermally bonding a hot-melt adhesive cloth to cloth without

hardening the texture of the sewn finished product. The final product is used as, for example, a collar or a cuff in a shirt. As Japanese CHEM KK nowhere discloses or suggests applying to paper the specifically recited hot melt adhesives in the process of amended Claims 32-36, amended Claims 32-36 are also patentable over the subject matter of Japanese CHEM KK.

For the foregoing reasons, amended Claims 1, 13-15, 18 and 32-36 are believed to be patentable over Japanese CHEM KK. Accordingly, withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

It is respectfully submitted that new Claims 37-51 are also believed to be in condition for allowance and patentably distinct over the art of record for at least the reasons set forth hereinabove.

For the foregoing reasons, amended Claims 1, 13-15, 18, 26, 28-30 and 32-36 and new Claims 37-51 as presented herein are believed to be in condition for immediate allowance. Such early and favorable action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael E. Carmen".

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APPENDIX A

AMENDED SPECIFICATION MARKED TO SHOW CHANGES:

Page 11, please replace the paragraph beginning on line 17 with the following new paragraph:

-- In addition, up to 10% and preferably from 0.5 to 5% of the polyethylene [glycol] oxide may be replaced by hydrophobic homopolymeric polyalkylene glycols, the alkylene group containing more than 2, preferably 3 or 4 carbon atoms. Their molecular weights are in particular in the range from 150 to 10,000 g/moles.--

APPENDIX B

AMENDED CLAIMS MARKED TO SHOW CHANGES

Please amend Claims 1, 18, 26, 32, 35 and 36 to read as follows

1. (Thrice Amended) A process for the production of at least two-ply paper laminates, the process comprising:

applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive [having a solubility in water at 20°C of at least 3% by weight] comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C, and

laminating at least a second layer of paper onto the adhesive side of the first layer.

18. (Amended) A process as in claim [17] 37 wherein the [hotmelt adhesive is a] nonionic polyurethane [that] is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

26. (Twice Amended) A hygiene paper comprising:

a first layer of paper secured to a second layer of paper by a hotmelt adhesive [selected from the group consisting of polyalkylene glycols having a molecular weight of at least 1,000 and] having a solubility in water at 20°C of at least 3% by weight and comprising one or more [nonionic] polyurethanes having a molecular weight (M_n) of at least 2,000, wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C.

32. (Amended) A process comprising:

applying a hotmelt adhesive to at least a portion of a first [substrate] layer of paper, the hotmelt adhesive comprising a [nonionic] polyurethane obtained from a polyurethane reaction mixture containing [as a hydrophobic chain extender for the polyurethane a chain extender comprising] a hydrophobic diol having a hydrophobic moiety containing from 6 to 36 carbon atoms; and

contacting a second [substrate] layer of paper with the hotmelt adhesive.

35. (Amended) [The process of Claim 33 wherein the hydrophobic diol chain extender is] A process comprising:

applying a hotmelt adhesive to at least a portion of a first layer of paper, the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic structural element obtained by reacting at least one NCO-terminated oligomer with a reactant selected from the group consisting of [monools] mono-ols and monofunctional amines; and

contacting a second layer of paper with the hotmelt adhesive.

36. (Amended) The process of Claim 32 wherein the hydrophobic diol [chain extender] is selected from the group consisting of 1,10-decanediol, 1,12-dodecanediol, 1,12-octadecanediol, dimer fatty acid diol, 1,2-octanediol, 1,2-dodecanediol, 1,2-hexadecanediol, 1,2-octadecanediol, 1,2-tetradecanediol, 4,4-isopropylidene dicyclohexanol, 4,8-

bis(hydroxymethyl)tricyclo-[5,2,1,0^{2.6}]decanes, 1,4:3,6-dianhydro-D-mannitol, 1,4:3,6-dianhydro-D-sorbitol, 1,16-hexadecanediol, biosphenol A, monofatty acid esters of glycerol with fatty acids containing up to 22 carbon atoms, and mixtures thereof.